PORTUGUESE ADAPTATION OF THE LEARNING MOTIVATION SCALE: A STUDY WITH MILITARY PERSONNEL

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Abstract

In this study the Learning Motivation Scale (LMS) was adapted to the Portuguese military context. The psychometric properties are presented and the results from the factor analysis displayed, which highlighted three factors – learning goal, performance-approach goal and performance-avoidance goal, with an item distribution coherent with the original version. The sample involved 149 trainees of the Training Course for Petty Officers 1st Class of the Portuguese Navy, ages ranging from 25 to 36, mostly of male gender. When studying external validity the scale factors appeared correlated, as expected, with other variables of commitment to training tasks, assessed with Assessment Scale for Trainee Engagement in the Portuguese Navy (ASTE-PN) and Utrecht Work Engagement Scale (UWES). The results suggest that the adapted version presents good psychometric qualities which make it useful in research and intervention, in psychology and education within a military context.

Keywords: motivation of military trainees, learning goals, scale adaptation, psychometric studies.

1 INTRODUCTION

Social systems are essentially dynamic realities, which demands from the training systems the ability to constantly adjust to the change and reorientation processes. This is where motivation gains notorious relevance with consequent improvement of the training process and trainee engagement.

The motivation phenomenon in education is located in the field of subjectivenesses, making it pertinent to analyse the theoretical referentials that allow us to comprehend the evolution of its conceptions, deeper exploring motivation theories, promote the understanding of motivational processes, identify the role of cognition and subjective beliefs as well as generate knowledge over motivation promotion strategies for training. Salas and Cannon-Bowers (2001) conceptualize the motivation for training as the direction, effort, intensity and persistence that the trainees apply in the learning activities before, during and after training. Therefore, it is understood that motivation entails a variety of psychological processes which lead to a choice, incite and set a goal-directed behavior ensuring the persistence of such behavior (Bzuneck, 2001; Henderson & Dweck, 1990). Motivation is hence considered a process and may be inferred from the behaviors and effects it produces (Pintrich & Schunk, 2002) and from the analysis of the factors that drive the engagement in certain actions directed to goal obtainment (Ford, 1992; Maehr & Meyer, 1997; Tapia & Fita, 1999). The motives of every subject depend consequently on their expectations, perception of self and tasks to perform, their interests, attitudes, attributions and mental representations which are the origin of the goals they set (Cabanach, et al., 1996) and that sustain the kind of physical and mental engagement (Pintrich & Schunk, 2002). Motivation is thus seen as a private, neural, biological, psychological and non-observable process (Reeve, 2012), though detectable through the trainees' observable actions like the start of a task and the resilient commitment to its performance (Stipek, 2002), where the idea of engagement is implicit. In fact, motivation represents a "gateway to engagement" (Barkley, 2010, p. 15). Motivation and engagement do not overlap but rather complete each other in a sense that motivation plays a role of intent and engagement the role of action (Martin, 2007).

Marie Fontaine (2005) argues that motivation "drives people to try to solve their problems or, on the contrary, run from them. It involves affects and emotions, inhibits or fosters learnings and provides meaning to the experience" (p.11). In this respect, the Ames' Achievement Goal Theory (1992) contributes to the comprehension of the motivational factors that influence the trainee's behavior and their engagement in the learning process (Zenorini & Santos, 2010).

By achievement goal it is meant a set of processes implying conduct activation, direction and persistence (Zenorini & Santos, 2010), like the perception the subject has of themselves, the reason to engage in certain tasks and why they search for the accomplishment of certain school objectives, translated into the different ways to conclude school tasks (Ames, 1992; Dweck & Leggett, 1988; Elliot & Dweck, 1988; Maehr & Midgley, 1991; Zenorini & Santos, 2010). Thus sharing the idea of Clayton, Blumberg and Auld (2010), Santos, Alcará and Zenorini (2013) argue that the goal that the person adopts represents the motive for which they will perform a certain task.

There are different orientations for goals, but two of them are always present in different goal orientation theories: learning and performance goals (Bzuneck, 1999; Dweck & Leggett, 1988; Elliot & Dweck, 1988). Regarding the learning goal orientation the focus lies in learning, more specifically, in dominance over the task according to self-established standards or in the improvement of the subject themselves who looks for intellectual growth, valuing the effort, facing the challenges that may come up and using self-regulatory learning strategies (Ames, 1992; Dweck & Leggett, 1988; Maehr & Midgley, 1991; Midgley et al., 1998; Nicholls, 1984; Zenorini & Santos, 2010). The goals of mastery would therefore be intimately related to intrinsic motivation and self-concept (Roeser, Midgley & Urdan, 1996). The performance oriented goals are focused in competence or ability demonstration and how that ability is judged in relation to others, like for example other better ones, using social comparison standards, trying to be the best within a group, demonstrating their own intelligence, avoiding judgment of ill ability and seeking public recognition of their performance, that is, extrinsic motivation (Ames, 1992; Dweck & Leggett, 1988; Midgley et al., 1998; Zenorini & Santos, 2010).

Elliot and Harackiewicz and their colleagues (Elliot, 1997; Elliot & Harackiewicz, 1996; Harackiewicz, Barron & Elliot, 1998) distinguish performance-approach goals from performance-avoidance goals. These researchers suggested that subjects may be driven to avoid failure through performance-avoidance goals. According to Higgins (1997) focus on approach/ promotion had taken individuals to pursuit positive or desirable final states whereas focus on avoidance/ prevention will take the subjects away from negative or undesired results. Hence, it is expected that approach/ promotion orientation be positively related to cognition, motivation and behavior, whereas avoidance/ prevention orientation will negatively be related to these results (Schunk, Pintrich & Meece, 2010).

Several studies were developed intending to deepen the knowledge between the learning goal and the performance goal (Anderman & Young, 1994; Anderman & Anderman, 1999; Zenorini & Santos, 2004) and between the approach and avoidance components of the performance goal (Middleton & Midgley, 1997; Elliot & Church, 1997; Elliot, McGregor & Gable, 1999; Midgley, Kaplan & Middleton, 2001; Harackiewicz, Barron, Tauer & Elliot, 2002; Valle et al., 2006; Wolters, Yu & Pintrich, 1996, Zenorini, Santos & Bueno, 2003).

With the purpose of widening and deepening the creation of a motivation assessment instrument – sustained by the need to answer questions on student perception over themselves, the reasons for their engagement in certain tasks and their academic objectives – Zenorini and Santos (2008) built, initially, the *Escala de Avaliação da Motivação para Aprendizagem - Universitários* (EMAPRE-U) [Learning Motivation Scale - Undergraduates (LMS-U)], which culminates in the development of a new version to be applied to college students. After a thorough review process the Learning Motivation Scale - Portuguese Navy (LMS-PN) emerges adapted to the Portuguese military context which keeps the characteristics of the LMS-U. Throughout the adaptation process, the data for the present study emerged. Its methodology is presented next.

2 METHODOLOGY

Below is the sample, followed procedures and the motivation assessment instrument adapted to the present study.

2.1 Subjects

This study considered a representative heterogenous and non-probability sample of the 149 trainees attending the Training Course for Petty Officers 1st Class which started in 2011 and 2012. This population consists of young adults, ages ranging from 25 to 38 (average age of 30,87 and standard deviation of 2,98), of both genders (92,6% male and 7,4% female). Joining the Portuguese Navy meant leaving the residence area to 53,7% of the trainees, having 45% maintained the same residence area. 20,8% of the trainees live in the barracks since their residence area is located over 120 km, they may therefore make use of navy facilities. The Training Course for Petty Officers 1st

Class is composed of several classes with seventeen specialties (artilleryman, radar operator, torpedoman's mate, machinist's mate, mechanical automobile driver, electrician's mate, ship's serviceman, mess management specialist, marine, gunner's mate, clerk, electromechanical technician, operations specialist, driver and services).

2.2 Instruments

The instrument is the *Escala de Avaliação da Motivação para Aprendizagem - Universitários (EMAPRE-U)* [Learning Motivation Scale - Undergraduates (LMS-U)] (Zenorini & Santos, 2008), built upon the Achievement Goals Theory. Initially, Zenorini and Santos (2008) built the scale with 50 items. The final version of the scale comprehends 28 items: twelve in the learning goal sub-scale (five items refer to the desire and interest in knowledge increase, in learning new subjects, three are related to challenge and four to persistence), seven in the performance-approach goal (refer to the search for increased worth through social recognition and superiority demonstration) and nine in the performance-avoidance goal (referring to the avoidance of an action which may bring negative consequences). These three factors explained 36.11% of the variance, the factor charges are satisfactory (variation from 0.45 to 0.71) and the internal consistency, measured by the Cronbach's alpha, proved to be quite high, with indexes of 0.80, 0.76 and 0.74. The several items are classified in a Likert scale with the following agreement level: 1 (agree); 2 (can't tell); and 3 (disagree). Starting from that scale, the authors have developed a new version to be applied to college students, having, to that effect, made adjustments as to the type of language used, like, for example, replacing terms like "school tasks" by "academic tasks". In this last version a grouping of items in the same three factors has been observed in the factor analysis with a total variation of 39.41%. It was observed that the item grouping by factors was similar to the previous research with students from secondary education (Zenorini & Santos, 2008) and with relatively classic researches (Elliot and Church, 1997; Elliot & Harackiewicz, 1996 and Midgley et al., 1998). Regarding internal consistency, it resulted in a higher index for the performance-avoidance goal (0.83) and in a lower index for the learning goal (0.72). The authors suggest, thus, the conduction of other studies to research whether to maintain, or not, this trend (Santos, Alcará & Zenorini, 2013). The scale, now adapted to Portugal, has passed by a preliminary version tested in 21 subjects which resulted in a final scale with 28 items structured in a Likert scale of 1 (disagree entirely) to 6 (agree entirely) called Learning Motivation Scale - Portuguese Navy (LMS-PN).

2.3 Procedures

After research approval by the Chief of Staff of the Portuguese Navy the course directors were asked for permission to conduct the survey. Once the survey was authorized, the data were collected outside working hours, immediately after classes or inside the classrooms, according to the availability of the trainers accompanying the process and without prejudice to the training. Before completing the questionnaires, the survey's objectives were explained and some particularities of the questionnaire clarified. The average administration time was 30 minutes.

3 RESULTS

Below is the information on result reliability, construct validity and external validity.

3.1 Construct validity

Studying the scale comprehended the factor analysis of principal components with varimax rotation, with the identification of three factors, according to the original scale. The results allowed the extraction of three significant dimensions identified according to the original scale – learning goal (LG), performance-approach goal (PApG) and performance-avoidance goal (PAvG) – having still been considered a general dimension – total motivation (TMOT) – resulting from adding the scores from every dimension (Table 1).

Table 1. Results from factor analysis

	Items	Factor
Learning goal		**1**
12	I perform my tasks because I like learning new subjects.	.843
23	I put an effort on my work because I want to widen my knowledge.	.801
25	I like hard and challengind tasks.	.783
05	I perform my tasks because I have an interest in them.	.775
10	I perform my tasks because I like them.	.760
21	I like it when a subject makes me want to learn more.	.744
14	The harder the subject, the more I like to try to understand.	.668
19	I like tasks more when they make me think.	.585
01	When I don't do well in a test, I work harder for the next one.	.564
02	I don't give up easily before a difficult task.	.549
28	I am persistent, even when a task frustrates me.	.544
Performance-avoidance goal		**2**
27	I express myself little for fear that my superiors and colleagues think I am not very intelligent.	.896
22	I express myself little because I don't want to seem ignorant.	.888
9	I express myself little because I don't want my colleagues to laugh at me.	.855
16	I abstain from debates because I don't want my superiors to think that I know less than my colleagues.	.833
26	I avoid asking for help when I don't understand something in order not to give the impression that I am less inteligent than my colleagues.	.817
6	I express myself little because I am affraid to talk nonsense.	.798
18	I express myself little when I have questions over the subject being handled.	.676
Performance-approach goal		**3**
20	I like to participate in group works as long as I get to be the leader.	.415
8	I want to be better than everyone else.	.814
11	I feel successful when I know that my work was better than my colleagues'.	.785
4	It is important to me to perform tasks better than my colleagues.	.774
24	I want to be the best at what I do.	.737
15	It it important to me to finish the tasks that my colleagues cannot.	.734
13	I like to show my colleagues that I know it all.	.718
3	It is important to me to do things better than everyone else.	.607
17	Success is doing things better than others.	.606

The total percentage of explained variance was 57.82. The learning goal factor, with eleven items explained 26.5% of the variance, the factor charges varying from 0.54 to 0.84. The performance-approach goal, with nine items explained 21.9% of the variance, the factor charges varying from 0.42 to 0.81. The performance-avoidance goal factor, with seven items, explained 9.41% of the variance with factor charges varying from 0.68 to 0.896. The internal consistency was assessed by the Cronbach's alpha: for the learning goal, the coefficient was 0.89; for the performance-approach goal was 0.89; for the performance-avoidance was 0.92 and for the total scale 0.89. Item 7 ended up being excluded since it wouldn't load any of the factors. The proximity between both versions, the brazilian and the portuguese, was also observed regarding the meaning of the three identified factors.

3.2 External validity

When studying external validity, it was considered the relation between the results on the LMS-PN and the scoring on variables specific to commitment in training tasks assessed with the Assessment Scale for Trainee Engagement in the Portuguese Navy (ASTE-PN), by Frade and Veiga (forthcoming). Regarding external validity, it was also considered the relation between the LMS and the scoring under the instrument Utrecht Work Engagement Scale (UWES) by Schaufeli and Bakker (2003), with

high correlations. Tables 2 and 3 present the correlation coefficients found, as well as their level of statistic significance.

Table 2. Correlation coefficients between the LMS-PN and ASTE-PN results

Items	Cognitive Engagement	Affective Engagement	Behavioral Engagement	Total Engagement
LGO	.716***	.695***	.651***	.803***
PApG	.255**	.178*	.104	.247**
PAvG	.328***	.055	.343***	.284**
TMOT	.675***	.510***	.583***	.699***

* p < .05; ** p < .01; *** p < .001

Table 3. Correlation coefficients between the LMS-PN and UWES results

Items	Dedication and Vigor	Absorption	Total Engagement
LGO	.711***	.570***	.701***
PApG	.240**	.289**	.272**
PAvG	.027	-.071	-.005
TMOT	.529***	.454***	.535***

* p < .05; ** p < .01; *** p < .001

The obtained coefficients are statistically significant, in general, and as expected, high in the relation between the LMS-PN and the ASTE-PN and UEWS. The extracted values allow to conclude that there is a positive relation between motivation and engagement. However, considering Table 2, behavioral engagement does not correlate, in statistically significant manner, to the performance-approach goal, nor does the affective engagement correlate, in statistically significant manner, to the performance-avoidance goal. Likewise, on Table 3, the performance-avoidance goal does not significantly correlate to any of the engagement dimensions of the UWES scale.

4 CONCLUSION

The need to set, in the trainees, objectives towards goal achievement and effective engagement in learning training makes the subject of motivation central.

In the scope of learning motivation assessment and in the study hereby presented the LMS stands out as an instrument recommended by several authors and frequently used in international scientific research. During this study of its adaptation, the results obtained were similar to the ones found in the original version (Zenorini & Santos, 2008). The scale presented good psychometric qualities which make it useful when researching in psychology and education.

Deserving further subsequent studies, the following is noted: studying the external validity of the scale, though the positive correlations pointed to the expected direction, they were not always statistically significant. Considering the correlation with the ASTE-PN, the behavioral engagement doesn't correlate, in a statistically significant manner, to the performance-approach goal, nor does affective engagement correlate, in a statistically significant manner, to the performance-avoidance goal, which may lead to some reconsideration. Likewise, considering the correlation with the UWES, the performance-avoidance goal doesn't correlate, in a statistically significant manner, to any of the engagement dimensions. Understandable since, in essence, this goal is the opposite of engagement.

Subsequent studies are suggested with result analysis under specific variables, particularly sociodemographic which will widen the scale's external validity, as well as increase knowledge over motivation multidimensionality, incidence and its factors.

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